Ecological and Biological Aspects of Pasture Management in Mongolia

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Ecological and biological aspects of pasture management in Mongolia

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Introductions Mongolia has 147 .1 million ha area suitable for pasture , which is a basic fodder for animal husbandry of Mongolia . Pasture management is only way of prevention degradation and year round availability of feed for livestock sector will be provided due to the pasture management . Temporally , the pasture management is divided into 2 periods such as warm and cold season . Warm season pasture management requires the most responsible and accurate actions . During warm period or 120 days , plant growth and development undergoes numbers of stages , and achievement to definite level of productivity , followed by withering takes place . Main goal of pasture management is provide the condition to complete all growth stages of plants and define grazing duration . Most sensitive growth period which is to define futher growth of the plants is tillering , buding and heading . If livestock grazing coupled with plant tillering , shooting then decrease productivity totally . Therefore , it would be important to manage pasture utilization to avoid overgrazing in first stages of pasture plants .

Materiers and methods Experimental data gathered during field study of rangelands encompassing 4 ecological zones of Mongolia in 1972-1990 and 1991-2005 are the basis of the paper . These experimental data include more than 1500 descriptions of soil and plant communities , more than 22000 samples of vegetation , plant species collected for yield . Basical coverage of plant species , rocks , litter and bareground were determined in randomly selected areas . The productivity of pastures was measured in May-August , in October , in March and in April (S .Tserendash ,1972) . Plant samples were classified as green grass and litter . Carrying capacity and stocking rate of pasture were determined by S .Tserendash (1996) .

Results and conclutions The accumulation of pasture productivity is variable in different regions depending on the species compositions , bio morphological characteristics , ecological and climatic conditions . The maximal productivity of any pastures is found during end of flowering and seeding stages of the plants , dominant for late July or first decade of August , and biological productivity is 10 .5-15 .0 c/ha in high mountainous region , 11 .5-19 .4 c/ha in forest-steppe , 6 .5-13 .0 c/ha in steppe and 2 .9-3 .8 c/ha in semi-arid regions . There is a carrying capacity to bear in an average 86 million sheep in normal climate condition per year . It is necessary to estimate the pasture grazing capacity in our country in 3 versions , such as drought years , normal year's and favorable year's by relying on the multi-year changes of vegetation . Research result demonstrates that the use of forest steppe , steppe and semi-arid pastures in tillering stage or late May is activated , resulted in 2-4 fold regrowth as multi-year average . It is therefore possible to reuse the forest-steppe pastures twice or thrice , steppe pasture once or twice and high mountain pasture once relied on the characteristics of vegetation regrowth . The above mentioned principle on vegetation regrowth of various pastures is importantr for estimation of the adequacy , grazing and stocking capacities of summer pastures , and it is a source for reserve . Use of pasture aftermath provides with the possibility of using 10-40% greater protein and 10-30% greater yeild per unit of area .

Any pasture is composed of numbers of plant species growing in harmony as a result of evolution . Of these plant species only 3-5 species of plants drive the pasture growth and develoment . As well as the productivity and stability of any pasture types depends on these plants . Grass is advanced then others by their function in vegetation cover , climate , tolerence humen activity impact , competetive capacity . Pasture sustainable management depend on biology , morphogy , and abundance of funtional group of plants . Total pasture productivity can be determined by grass yield based grass steady growth as well as pasture improvement technology may proceed . If grass makes up 25 % pasrure produtivity , it would be give positive result to shift pasture plant growth periodes .

Proper combination of the duration and frequency of pasture use with patterns of plant development is a basis of organizing pasture uses as well as protecting it from degradation . The best way to adapt pasture vegetation for climate change is to follow a concept to use 50 % of aboveground grass biomass and leave 50% on the ground .